

Understanding Solid State Drive Hosting and Advantages and Disadvantages of Solid State Drives (SSDs)

Keeping up with hordes of customers piling up orders by thousands a minute can be an arduous task for owners of large eCommerce websites or corporate websites of similar nature. That is why most of such demand intensive websites are hosted on dedicated servers with top-shelf hardware resources that can handle large influxes of traffic.

But with time, as the websites grow, their needs grow too, often at paces so high that can be difficult to keep up. As the databases become larger and complicated with increase in number of customers, most website owners level-up their dedicated server resources- more RAM, more storage space and more bandwidth. This solves the problem for most, but not all.

And let's say that you belong to the select few whose problem hasn't been solved. You've exhausted all the avenues of improvement in dedicated servers, and your website still keeps facing speed problems like high loading time, slow responses to customers' queries, etc. What do you do now?

Solid State Drive Hosting

Let's analyze the problem first. Why is the performance of your website so slow even after upgrading all the resources? Because the problem lies not with 'size' of the resources, but 'quality' of the resources.

Most of the dedicated servers that your website runs on use Hard disk drives. And here is the thing- no matter how much disk space you buy, HDDs simple can't keep up with the heavy load of activities on websites that attract large number of visitors.

This is where Solid State Drive hosting comes into the picture. Solid state drives take power, size, and performance dynamics of storage to an all together different level and deliver access times that are nearly impossible to achieve for standard HDDs.

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What are Solid State Drives?

Simply put, Solid State Drives are the next generation equivalent of Hard Disk Drives. Since the anatomy and working intricacies of both are too diverse and require an in-depth knowledge of hardwares to understand, I'll try to explain why SSDs are so much faster than HDDs in the simplest way possible.

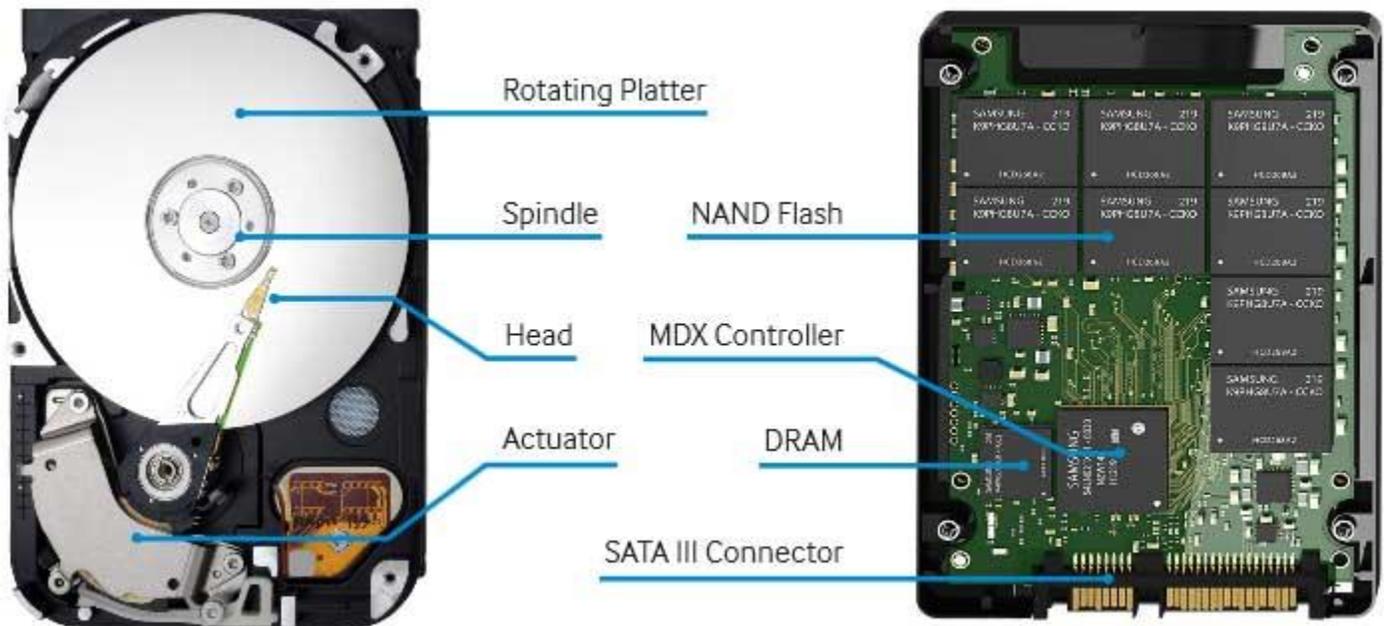
- Whenever someone visits your websites, he needs some information, and that information is stored in the disks you deploy- either HDD or SSD.
- This information is stored in rotating magnetic disks in case of HDDs. Whenever it is to be retrieved or read, a 'head' is used. Each magnetic disk has its own head, and the head is moved from the outside of the disk to inside by a slider whenever some data is to be retrieved. Now the head can only be in one place at any one time, and it takes time to move that head from one location to another. Even if it's only a 1mm away, it will still take a few milliseconds to move the head for data to be accessed, and hence the delay in response. (Every noticed how your old computer makes cantankerous whirring sound whenever it is under heavy load? It's because of the movement explained above.)
- SSDs on the other hand are flash storage devices that do not contain any moving parts, hence the name 'solid state'. The use of non-volatile storage technology means that there is no 'mechanical' movement every time data needs to be accessed, and hence SSDs are as much as 100 times faster than HDD when it comes to response time.

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So SSD powered hosting = faster input/output speeds = immediate access of the stored data = reduced loading time and swift performance for your website = happy visitor/customer = high conversion rates = MONEY!



Sounds great! What are advantages of Solid State Drive Hosting?

No latency: The key advantage is that SSDs are much faster than an HDD.

- Faster Access time.
- Greater data throughput.

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Safety of your data: The chances of you losing your website data if its hosted on HDD servers are very high. Those of you who've been using laptops since a while probably know how sensitive HDDs are. Any slightest mishandling can cause irreversible damage to your data. SSDs have no mechanical and moving parts, and thus have very low wear and tear in long term. Also SSDs mean:

- Less power usage.
- No heat generation.
- High durability.
- No need for fragmentation.

High Stability: As already mentioned, since SSDs don't need unstable rotating discs, they're less prone to 'skipping' during data encryption and decryption process, thereby ensuring that every single piece of information/activity on your website is properly stored.

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Hard Disk Drives	Solid-State Drives
Rotating platters and mechanical arms=comparatively fragile construction	No moving parts = more rugged construction
High energy consumption = reduced battery life	Low energy consumption = prolonged battery life and cooler system
Increased file fragmentation = decreased performance	Fragmentation not an issue; result is consistent performance
Greater risk of data loss and hard drive failure when transported	Little or no risk of data loss; resistant to mobile users' expected bumps and drops
Drive spin-up time and mechanical arm movement = comparatively slow responsiveness and performance	No drive spin-up time, no mechanical arm movement, minimal latency = fast responsiveness and performance

Too good to be true! What are major disadvantages of using SSD?

There are two sides to every coin and SSDs are no exception. One biggest short coming of SSDs is COST!

- SSDs are very expensive and their price per gigabyte of data storage is much larger when compared to traditional HDDs. If you choose an SSD for your server, you'll have to pay more for less space.
- While the validity of this claim is still under debate, there is a conception out there that while SSDs have great download speeds, they can't write data nearly as fast as an HDD.

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- While an HDD gives warning signs before failing, SSD doesn't. If it's going to fail, it fails. Simple as that. You don't get any chance to take pre-emptive actions.

Wrapping things up:

SSD powered hosting is expensive, but it will get your job done and get it done with unparalleled swiftness. With the price tag it comes along with, SSD hosting surely is only for those with websites that have lots of dynamically generated content & are heavy to read. So weigh the costs and benefits properly and make an informed decision before you go for it.

That said, the price of SSDs has been dropping consistently lately and they are being adopted by datacenters and web hosting providers at a very rapid pace. You can easily see a very visible difference in your website and its applications' performance on upgrading from an HDD to an SSD. On technology front, SSDs are miles ahead of HDDs and if you've the capital, there is no reason why you shouldn't go for them.

SSDs sure are the future, and at the trend they are evolving, you might want to jump on the train as soon as possible to reap the benefits properly.

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